

# MATERIAL SAFETY DATA SHEET



## SURFLAN\* A.S. HERBICIDE

Emergency Phone: 800-992-5994  
Dow AgroSciences • Indianapolis, IN 46268

Effective Date: 01/01/98  
Product Code: 20122  
MSDS: 003738

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** SURFLAN\* A.S. HERBICIDE

#### COMPANY IDENTIFICATION:

Dow AgroSciences  
P.O. Box 681428  
9330 Zionsville Road  
Indianapolis, IN 46268-1189  
www.dowagro.com

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

Oryzalin: 3,5-Dinitro-N4,N4-dipropyl-sulfanilamide  
CAS# 019044-88-3 40.4%  
Other Proprietary Ingredients, total, including: 59.6%  
Propylene Glycol (1) CAS# 000057-55-6  
Glycerine (2) CAS# 000056-81-5

(1)NOTE: Listed as 1,2-Propanediol under Pennsylvania Right-to-Know Law.

(2)NOTE: Listed as 1,2,3-Propanetriol under Pennsylvania Right-to-Know Law.

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR) 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

### 3. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

**Hazardous chemical. Product is an opaque bright orange liquid. Slight aromatic odor. May cause slight transient eye irritation. Prolonged exposure may cause skin irritation. Water based, will not burn. Moderately toxic to fish and aquatic organisms.**

**EMERGENCY PHONE NUMBER:** (U.S.) 800-992-5994

This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

**EYE:** May cause slight transient (temporary) eye irritation. Corneal injury is unlikely.

**SKIN:** Prolonged exposure may cause skin irritation. Prolonged or frequently repeated skin contact may cause an allergic skin reaction in some individuals. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD50 for skin absorption in rabbits is >5000 mg/kg.  
**INGESTION:** Single dose oral toxicity is low. The oral LD50 for rats is 5000 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.  
**INHALATION:** At room temperature, exposure to vapors are minimal due to physical properties; higher temperatures may generate vapor levels sufficient to cause irritation and other effects. The LC50 for rats was >6.30 mg/L in 4 hours.  
**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** In animals, has been shown to cause liver, kidney, bladder, spleen or blood effects. Repeated excessive ingestion of propylene glycol may cause central nervous system effects.  
**CANCER INFORMATION:** In tests conducted using oryzalin, thyroid follicular cell tumors noted in rats were considered to represent a unique response of rats to p-substituted aminobenzene sulfonamides. Benign skin and adnexal tumors were seen in treated rats as well, and may also have been secondary to thyroid effects.  
**TERATOLOGY (BIRTH DEFECTS):** Oryzalin did not cause birth defects, other fetal effects occurred only at doses toxic to the mother.  
**REPRODUCTIVE EFFECTS:** Most components did not interfere with reproduction in animals. One minor component which affected reproduction was believed to act through an alteration of the nutritional status of the animals when fed at exaggerated doses.

### 4. FIRST AID:

**EYES:** Flush eyes with plenty of water.  
**SKIN:** Wash off in flowing water or shower.  
**INGESTION:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.  
**INHALATION:** Remove individual to fresh air. Consult a physician.  
**NOTE TO PHYSICIAN:** No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

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### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** No ignition up to 200F, 93.3C

**METHOD USED:** SCC

#### FLAMMABLE LIMITS

LFL: Water based product

UFL: Water based product

**AUTO-IGNITION TEMPERATURE:** Water based product

**EXTINGUISHING MEDIA:** SURFLAN A.S. is a water based suspension and will not burn.

**FIRE AND EXPLOSION HAZARDS:** This material will not burn until a sufficient amount of water has evaporated. At this point, the material will exhibit the flammability characteristics of propylene glycol and oryzalin. The explosive potential of oryzalin as an airborne dust is rated as severe. The minimum ignition temperature for a dust cloud is 714F, 379C.

**FIRE-FIGHTING EQUIPMENT:** SURFLAN A.S. is a water based suspension and will not burn. However, if product is involved in a fire, wear positive-pressure, self-contained breathing apparatus and full protective clothing.

### 6. ACCIDENTAL RELEASE MEASURES: (See Section 15 for Regulatory Information)

**ACTION TO TAKE FOR SPILLS:** Use absorbent material to contain and clean up small spills and dispose as waste. Large spills report to CHEMTREC and contact Dow AgroSciences for assistance. Prevent runoff.

### 7. HANDLING AND STORAGE:

**SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep out of reach of children. Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye irritation. May cause skin sensitization reactions in certain individuals. Avoid contact with skin, eyes, and clothing. Avoid breathing vapor or spray mist. Do not contaminate water, food, or feed by storage or disposal. Store in original container only. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Read the product label for personal protective equipment which may be required by the Worker Protection Standard of 1993.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

These precautions are suggested for conditions with a high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

#### EXPOSURE GUIDELINE(S):

Propylene glycol: AIHA WEEL is 50 ppm total, 10 mg/M3 aerosol only.

Glycerin: ACGIH TLV is 10 mg/M3. OSHA PEL is 10 mg/M3 total, 5 mg/M3 respirable.

PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

**ENGINEERING CONTROLS:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

**RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guideline. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use a NIOSH approved air-purifying respirator.

**SKIN PROTECTION:** When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material. Selection of specific items such as faceshield, gloves, boots, apron, or full-body suit will depend on operation.

**EYE/FACE PROTECTION:** Use safety glasses.

### 9. PHYSICAL AND CHEMICAL PROPERTIES:

**BOILING POINT:** (@ 1 atmosphere) 212F, 100C

**VAPOR PRESSURE:** Approximately 23 mm Hg at 25C

**VAPOR DENSITY:** 1.178 relative to air at 25C

**SOLUBILITY IN WATER:** Miscible in water

**SPECIFIC GRAVITY:** 1.138 to 1.239 at 25C

**APPEARANCE:** Bright orange opaque liquid

**ODOR:** Slight aromatic odor

**pH:** (aqueous 50/50) 5.0 to 6.8

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### 10. STABILITY AND REACTIVITY:

**STABILITY: (CONDITIONS TO AVOID)** Surflan A.S. is water-based and as such is stable under normal handling conditions. If the water in the mixture evaporates; however, the resultant mixture should be handled with care. The explosive potential of oryzalin as an airborne dust is rated as severe. The minimum ignition temperature for a dust cloud is 714F, 379C.

**INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)**  
None known

**HAZARDOUS DECOMPOSITION PRODUCTS:** Nitrogen oxides and other toxic gases may be formed if product is involved in fire.

**HAZARDOUS POLYMERIZATION:** Does not occur.

### 11. TOXICOLOGICAL INFORMATION:

For detailed toxicological data, write the address shown in Section 1 or call the emergency phone number.

**MUTAGENICITY:** In-vitro and animal mutagenicity studies were negative.

### 12. ECOLOGICAL INFORMATION:

For detailed ecological data, write the address shown in Section 1 or call the emergency phone number.

**ECOTOXICOLOGY:** Moderately toxic to fish and aquatic organisms on an acute basis. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spills.

### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be used according to label directions or disposed of at an approved waste disposal facility.

### 14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

### 15. REGULATORY INFORMATION:

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See MSDS Sheet for health and safety information.

#### U.S. REGULATIONS

**SARA 313 INFORMATION:** This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
ORYZALIN O4-(DIPROPYLAMINO)-3,5-DINITROB	019044-88-3	40.4%

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

#### **TOXIC SUBSTANCES CONTROL ACT (TSCA):**

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

**STATE RIGHT-TO-KNOW:** The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
1,2,3-PROPANETRIOL	000056-81-5	PA1
1,2-PROPANEDIOL	000057-55-6	PA1

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

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### OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

#### RATINGS:

Health	2
Flammability	0
Reactivity	0

### COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):

To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

### 16. OTHER INFORMATION:

**MSDS STATUS:** Corrected CAS#, Updated to 16 Section MSDS, Revised Sections 3, 4, 8, 11, and 12.

EPA Reg. Number: 62719-112.

The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.